
**Information technology — Multimedia
framework (MPEG-21) —**

**Part 20:
Contract Expression Language**

*Technologies de l'information — Cadre multimédia (MPEG-21) —
Partie 20: Langage d'expression des contrats*





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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/IEC JTC 1, *Information Technology*, Subcommittee SC 21, *Coding of audio, picture, multimedia and hypermedia information*.

This second edition cancels and replaces the first edition (ISO/IEC 21000-20:2013), which has been technically revised with the following changes:

- some strengthening of the core contract part and some reordering within the extension for the exploitation of intellectual property rights have been provided;
- the set of facts available for specifying conditions has been completed;
- addition of a simple payment and notification extension;
- the relationship with acts defined in ISO/IEC 21000-5 (REL) has been refined;
- a clear mechanism for defining further future extensions is in place.

A list of parts in the ISO/IEC 21000 series can be found on the ISO website.

Introduction

Today, many elements exist to build an infrastructure for the delivery and consumption of multimedia content. There was, however, no "big picture" to describe how these elements, either in existence or under development, relate to each other. The aim for the ISO/IEC 21000 series has been to describe how these various elements fit together. New standards, as appropriate, will be developed while other relevant standards may be developed by other bodies.

The result is an open framework for multimedia delivery and consumption, with both the content creator and content consumer as focal points. This open framework provides content creators and service providers with equal opportunities in the ISO/IEC 21000 series-enabled open market. This will also be to the benefit of the content consumer providing them access to a large variety of content in an interoperable manner. The vision for ISO/IEC 21000 is to define a multimedia framework to enable transparent and augmented use of multimedia resources across a wide range of networks and devices used by different communities.

ISO/IEC 21000 series aims thus at defining an open framework for multimedia applications, where users distribute, consume, operate on and transact with content represented as Digital Items.

These transactions can be automatically governed by licenses using the Rights Expression Language from ISO/IEC 21000. However, beyond the operative information present in a digital license, the digital representation of the complete business agreements between the parties may prove useful for a number of purposes. The Contract Expression Language (CEL) is the ISO/IEC language to express such contracts in a structured representation.

CEL may be used to represent contracts, for content directly, or for services on content based on MPEG-21 technologies. However, CEL may also be used as electronic format for contracts on the trade of media rights also beyond the MPEG framework.

The provided features include the identification of the contract itself and of its parties, and an unambiguous expression of the agreed permissions, obligations, and prohibitions, in a machine readable way, so that their verification can be implemented in software.

In particular, the CEL deontic expressions address the rights for the exploitation of intellectual property entities, including the specification of the associated conditions, together with other contractual aspects, such as payments, notifications or material delivery.

However, CEL may also be used as electronic format for contracts on the trade of media rights also beyond the MPEG framework.

The main aspect of CEL contracts are the operative clauses, represented as machine readable deontic expressions, i.e. the agreed permissions, obligations, and prohibitions, and the associated terms and conditions.

Besides, the CEL contract includes the identification of the contract itself, its parties, and the possible relationships with other contracts.

Among the provided features, there is the possibility to insert the textual version of the contract and/or of specific clauses, in particular for the case in which the original contract is narrative, i.e. written in natural language. Also, it is possible to add metadata related to any contract entity and to have encryption of the whole contract, or any sub-part of it. As electronic format for a contract document, the agreement of the parties can be proved by their digital signature.

Eventually, CEL provides to the media companies the basic means for the collection of knowledge on held rights, also derived from multiple contracts, as rights port-folio, for business management purposes.

Various potential benefits can be associated to the use of CEL. Firstly, CEL can support the business of media companies, for product placement and maximizing reuse of archive content, implying also cost reductions in all rights related activities, e.g. rights clearance. Afterwards, it supports the respect of copyright laws with respect to new exploitation technologies, also by contributing to the reduction of

mistakes with respect to contract compliance, implying decreasing number of controversies and other cost reductions. In general, CEL aims at increasing the quality of rights information, which gets more reliable and can be integrated with other metadata in standard way. This can bring even to improve working conditions and all the decision processes within media companies.

Information technology — Multimedia framework (MPEG-21) —

Part 20: Contract Expression Language

1 Scope

This document specifies a language for representing contracts in the Multimedia Framework formed for the transaction of MPEG-21 Digital Items or services related to the MPEG-21 Framework.

Contract Expression Language (CEL) aims at digitally representing the agreements made in environments using ISO/IEC 21000. These agreements are contracts for transactions of content packed as Digital Items, as well as services provided around this content.

The range of contracts under scope are as follows:

- contracts about transactions on rights for the exploitation of content as MPEG-21 Digital Items;
- contracts about the provision of MPEG-21-based services, i.e. delivery, identification, encryption, search and others.

The aspects represented by CEL contracts include the following:

- the textual clauses, in natural language as they are in the narrative contract, duly structured;
- the operative clauses, as computer language expressions.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 21000-5, *Information technology — Multimedia framework (MPEG-21) — Part 5: Rights Expression Language*

3 Terms, definitions and abbreviated terms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1.1 action

something done or performed by a *party* (3.1.6) or anyone acting on her behalf

Note 1 to entry: Action also represents the exercise of a right or duty.

3.1.2

deontic expression

generic entity encompassing the properties of an agreed machine readable contract clause regulating the *actions* (3.1.1) of the *parties* (3.1.6)

3.1.3

MPEG-21 Contract

representation of agreements formed for the transaction of MPEG-21 Digital Items or services related to the MPEG-21 Framework

3.1.4

MPEG-21 Service

system supplying utility in the MPEG-21 Framework

3.1.5

obligation

deontic expression (3.1.2) binding one of the *parties* (3.1.6) to execute an *action* (3.1.1)

3.1.6

party

organization or a user who accepts to respect the *deontic expressions* (3.1.2) defined in the contract and who expects the other *parties* (3.1.6) in the same contract to do the same

3.1.7

permission

deontic expression (3.1.2) allowing one of the *parties* (3.1.6) to execute an *action* (3.1.1)

3.1.8

prohibition

deontic expression (3.1.2) binding one of the *parties* (3.1.6) not to execute an *action* (3.1.1)

3.2 Abbreviated terms

CEL	Contract Expression Language
IPRE	Intellectual Property Rights Exploitation
IRI	Internationalized Resource Identifier
MCO	Media Contract Ontology
MPEG	Moving Picture Experts Group
MPEG-7	ISO/IEC 15938
MPEG-21	ISO/IEC 21000
OWL	Web Ontology Language
RDF	Resource Description Framework
REL	Rights Expression Language
URI	Uniform Resource Identifier (IETF Standard is RFC 3986)
URN	Uniform Resource Name (IETF Standard is RFC 2141)
W3C	World Wide Web Consortium
XML	Extensible Markup Language (W3C Recommendation)

4 Conventions

4.1 Document conventions

XML Representation

The syntax of each XML element in the Contract Expression Language is specified using the constructs provided by XML Schema. XML Schema documents or its fragments are presented in orange boxes. Omissions are marked with suspension points ([...]).

```
<?xml version="1.0" encoding="UTF-8"?>
<schema xmlns="http://www.w3.org/2001/XMLSchema" [...]
```

XML documents or its fragments are presented in gray boxes. Omissions are marked with suspension points ([...]).

```
<cel-core:Contract id="715" xsi:schemaLocation="urn:mpeg:mpeg21:cel:core:2015
cel-core.xsd" xmlns:dc="http://purl.org/dc/elements/1.1/" [...]
```

This document also makes use of diagrams to express portions of XML Schema, as shown in [Figure 1](#).

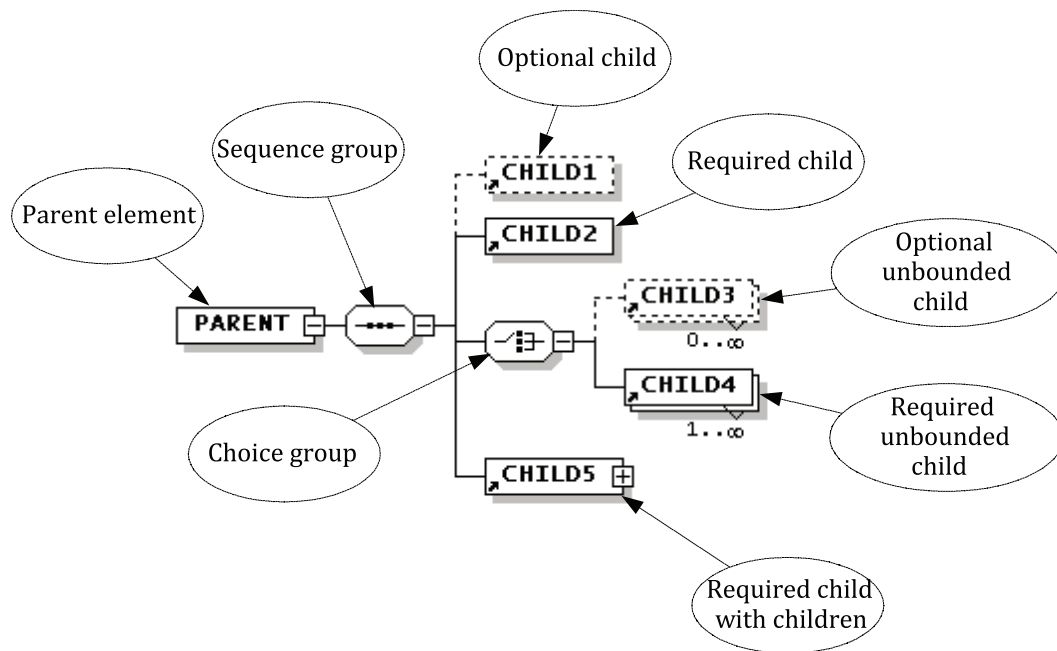


Figure 1 — Sample XML Schema diagram

[Figure 1](#) states which elements are required (boxes with solid outline), those that are optional (boxes with dashed outline), the number of occurrences of each element (0...), and the lineage between elements (symbols between elements indicating either a choice, or a sequence).



Figure 2 — Compositors used in XML Schema diagrams

Compositors, as shown in [Figure 2](#), describe (from left to right), respectively, a *sequence* of elements, a *choice* of elements and the *all* model.

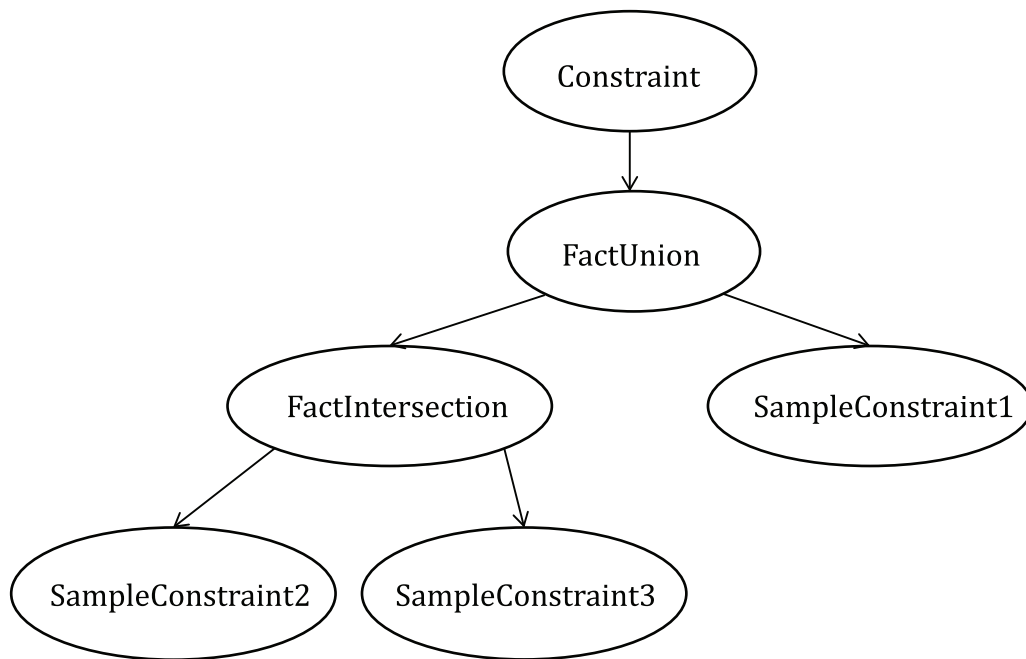


Figure 3 — Graphical representation of contract examples

Graphical description of contract examples, as shown in [Figure 3](#), presents how the elements in a contract relate between themselves to facilitate understanding of complex representations. FactUnion and FactIntersection allow the combination of constraints to represent complex relationships between the constraints defined in this document to represent a contract.

4.2 Namespace prefix conventions

4.2.1 General

The namespace for CEL core XML Schema is:

```
urn:mpeg:mpeg21:cel:core:2015
```

The namespace for CEL extension on exploitation of intellectual property rights XML Schema is:

```
urn:mpeg:mpeg21:cel:ipre:2015
```

The namespace for CEL extension on payments and notification XML Schema is:

```
urn:mpeg:mpeg21:cel:pane:2015
```

The namespace for CEL extension on MPEG-21 REL standard and multimedia extensions is:

```
urn:mpeg:mpeg21:cel:rele:2015
```

4.2.2 Use of prefixes

The CEL makes use of elements defined in other schemas, either given by MPEG-21 or others. The used namespace prefixes together with their reference is given in [Table 1](#).

Table 1 — Mapping of prefixes to namespaces in examples and text

Prefix	Corresponding namespace	Ref
cel-core	urn:mpeg:mpeg21:cel:core:2015	Here
cel-ipre	urn:mpeg:mpeg21:cel:ipre:2015	Here
cel-pane	urn:mpeg:mpeg21:cel:pane:2015	Here
cel-rele	urn:mpeg:mpeg21:cel:rele:2015	Here
dc	http://purl.org/dc/elements/1.1/	ISO 15836
dii	urn:mpeg:mpeg21:2002:01-DII-NS	ISO/IEC 21000-3
dsig	http://www.w3.org/2000/09/xmldsig#	W3C XML Signature Syntax and Processing
rel-mx	urn:mpeg:mpeg21:2003:01-REL-MX-NS	ISO/IEC 21000-5
rel-r	urn:mpeg:mpeg21:2003:01-REL-R-NS	ISO/IEC 21000-5
rel-sx	urn:mpeg:mpeg21:2003:01-REL-SX-NS	ISO/IEC 21000-5
xenc	http://www.w3.org/2001/04/xmenc#	W3C XML Encryption Syntax and Processing
xsd	http://www.w3.org/2001/XMLSchema	W3C XML Schema
xsi	http://www.w3.org/2001/XMLSchema-instance	W3C XML Schema Instance

5 Relationship to other parts of ISO/IEC 21000

The Digital Item is the fundamental unit of distribution and transaction in the Multimedia Framework. While the different parts of ISO/IEC 21000 deal with the components and different aspects of Digital Items, together they form a complete integrated interoperable framework. This clause describes the relationship of this document with the other parts of ISO/IEC 21000 in addressing the representation of the agreements for the aforementioned transactions.

A contract represented following this document may become a part of a digital item (whose declaration is given with the ISO/IEC 21000-2). If so, it will be declared with the Type element of ISO/IEC 21000-3 pointing to the CEL URI, as described in [B.3](#).

This document has the aim, as ISO/IEC 21000-21, of digitally representing contracts information. CEL enables the structured representation of contracts' information making use of XML, while MCO provides their semantic representation by means of OWL or RDF. Both parts share the goal of defining a contract document able to provide the information listed in [6.1](#) and they share the semantics for actions, facts and services.

This document also supports the expression of rights and conditions as defined in ISO/IEC 21000-5.

6 Overview

6.1 General aspects

A Contract Expression Language (CEL) contract is a document providing the following information, optional unless otherwise stated:

- identification of the contract itself — Required;
- possible relationships with other contracts;
- the Parties — Required;
- the textual version of the contract;
- a number of textual clauses which can be referenced by the operative part element;

- the Object of the contract (Content or Service) — Required;
- the Operative part, containing the contract information which have to be machine readable (deontic expressions, links to textual clauses) — Required.

CEL supports the possibility to encrypt either the whole contract or part of it.

CEL aims at providing the structural elements to syntactically represent operative clauses, in a machine-readable form.

6.2 Syntactic representation

A Contract document defined by CEL shall be compliant to the XML representation defined in [Clause 7](#). The document format is specified by an XML Schema. Any representation of a contract document defined by CEL supports the possibility of encrypting either the whole contract or part of it.

Contract documents shall validate against the CEL XML Schema, which is provided in [Annex A](#). A detailed description of the structured representation is given in [Clause 7](#).

7 Contract Structured Representation

7.1 General

CEL standard specification enables the structured representation of digital media contracts by means of XML. To this end, the CEL core XML schema has been defined. It normatively defines the core elements for media contracts. Its URI is:

urn:mpeg:mpeg21:cel:core:2015

Media contracts consist of deontic expressions which permit, obligate or prohibit users to execute generic actions over digital media if the imposed conditions are fulfilled. Common actions and conditions in media contracts have been defined as acts and constraints in the XML CEL extension on exploitation of intellectual property rights. Its URI is:

urn:mpeg:mpeg21:cel:ipre:2015

Moreover, it is needed to represent the basic information about payment terms agreed in media contracts and about agreed notification actions intended to inform the contract parties, or other indicated users, about the occurrence of relevant events. This information is defined in the XML CEL extension on payments and notification. Its URI is:

urn:mpeg:mpeg21:cel:pane:2015

Finally, to facilitate reference to MPEG-21 Rights Expression Language Standard and Multimedia extensions, a separated schema is provided. Contracts not making use of actions or constraints defined in this schema, do not need to include all of them. Its URI is:

urn:mpeg:mpeg21:cel:rele:2015

MPEG-21 CEL contract documents shall validate against the XML Schema specification(s) described in this subclause.

7.2 XML Schema definition

7.2.1 Contract element and main structure

The root element of a CEL contract is the `cel-core:Contract` element, which includes the structured representation of the contract by means of deontic clauses, as well as the original text version of

the contract. It also provides mechanisms for relating the narrative clauses of the contract with its structured XML representation.

The structure of the `cel-core:Contract` element is depicted in [Figure 4](#). Its child elements are as follows:

- optionally, a choice of `cel-core:TextVersion` containing the whole narrative contract as plain text or `cel-core:EncryptedTextVersion` containing an encrypted version of the whole narrative contract;
- `cel-core:Metadata`, optionally including metadata such as contract author, contract language, etc.;
- `cel-core:ContractsRelated`, optionally including references to pre-existing contracts the validity of which might be affected by the present one;
- `cel-core:Party`, the number of parties is open while 0 means that the contract is a template;
- `cel-core:Body`, exactly one body element is mandatory, with the contract clauses;
- `cel-core:EncryptedContract`, a full version of an encrypted contract; if it is present, the rest of elements do not appear.

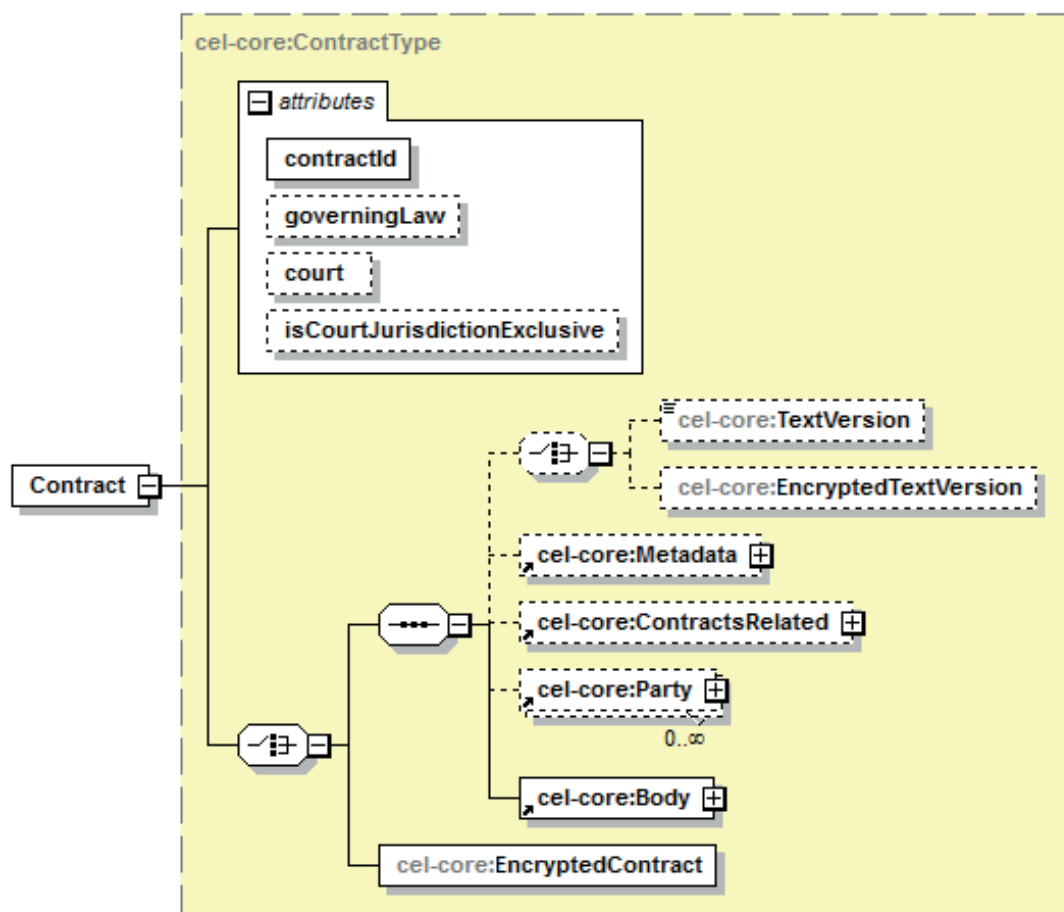


Figure 4 — Root and main elements in the contract

The `cel-core:Contract` element has the following attributes:

- `contractId` which uniquely identifies the contract;

- governingLaw for indicating the applicable governing law, i.e. the agreed reference legal system of the contract; it can be indicated as a country, if that country has only one legal system;
- court indicating which court has jurisdiction over any dispute related to the terms and conditions defined in the contract;
- isCourtJurisdictionExclusive indicating if the jurisdiction of the court, indicated by the attribute court, is agreed to be exclusive (true), preventing the parties from bringing proceedings in another court, or not (false). This attribute should be present if and only if the attribute court is present.

The CEL core XML Schema has the following header.

```
<schema xmlns=http://www.w3.org/2001/XMLSchema
  xmlns:cel-core="urn:mpeg:mpeg21:cel:core:2015"
  xmlns:dsig=http://www.w3.org/2000/09/xmldsig#
  xmlns:dii="urn:mpeg:mpeg21:2002:01-DII-NS"
  xmlns:xenc=http://www.w3.org/2001/04/xmlenc#
  xmlns:rel-r="urn:mpeg:mpeg21:2003:01-REL-R-NS"
  xmlns:dc=http://purl.org/dc/elements/1.1/
  targetNamespace="urn:mpeg:mpeg21:cel:core:2015"
  elementFormDefault="qualified" attributeFormDefault="unqualified"
  version="2nd Edition">
  <import namespace=http://purl.org/dc/elements/1.1/
  schemaLocation="http://dublincore.org/schemas/xmls/qdc/2008/02/11/dc.xsd"/>
  <import namespace="urn:mpeg:mpeg21:2003:01-REL-R-NS"
  schemaLocation="http://standards.iso.org/ittf/PubliclyAvailableStandards/MPEG-21_schema_files/rel-r/rel-r.xsd"/>
  <import namespace=http://www.w3.org/2000/09/xmldsig#
  schemaLocation="http://www.w3.org/TR/2002/REC-xmldsig-core-20020212/xmldsig-core-schema.xsd"/>
  <import namespace="urn:mpeg:mpeg21:2002:01-DII-NS"
  schemaLocation="http://standards.iso.org/ittf/PubliclyAvailableStandards/MPEG-21_schema_files/dii/dii.xsd"/>
  <import namespace=http://www.w3.org/2001/04/xmlenc#
  schemaLocation="http://www.w3.org/TR/2002/REC-xmlenc-core-20021210/xenc-schema.xsd"/>
```

7.2.2 Example

A sample contract may reference the XML Schema this way.

```
<?xml version="1.0" encoding="UTF-8"?>
<cel-core:Contract
  xmlns:cel-core="urn:mpeg:mpeg21:cel:core:2015"
  xmlns:dc=http://purl.org/dc/elements/1.1/
  xmlns:xsi=http://www.w3.org/2001/XMLSchema-instance
  xmlns:dsig="http://www.w3.org/2000/09/
xmldsig#" xmlns:dii="urn:mpeg:mpeg21:2002:01-DII-NS"
  xmlns:xenc=http://www.w3.org/2001/04/xmlenc#
  xmlns:rel-r="urn:mpeg:mpeg21:2003:01-REL-R-NS"
  xsi:schemaLocation="urn:mpeg:mpeg21:cel:core:2015 cel-core.xsd>
```

7.2.3 Metadata

Metadata can be added under the cel-core:Metadata element, giving information about the contract itself. Their optional elements can be seen in [Figure 5](#). A Dublin Core placeholder is provided (element cel-core:SimpleDC of type dc:elementContainer). Other metadata schemas are supported by means of the element cel-core:Other.

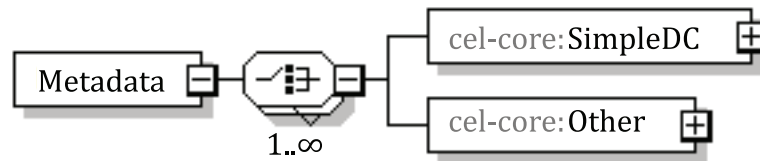


Figure 5 — Contract metadata elements

7.2.4 Element to relate contracts

The element `cel-core:ContractsRelated` provides the means to relate the contract to other identified contracts, between the same partners, as shown in Figure 6. The validity of the related contract can be affected according to relationship type, which shall be one of the following:

- `supersedes`, the referenced contract has to be considered terminated by the new agreement which totally replaces it;
- `cancels`, the parties agree to cancel all the effects of the referenced contract;
- `prevailsOver`, the referenced contract is generally still valid, but in case of conflict the terms of the new one prevail;
- `isAmendmentOf`, the referenced contract is partially modified by the new agreement.

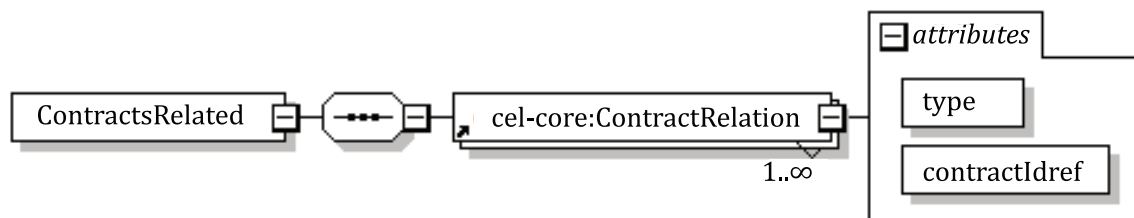


Figure 6 — ContractsRelated element

7.2.5 The parties

7.2.5.1 General

The contract contains the parties in the contract, as shown in Figure 4.

- `cel-core:Party`, zero or more parties for which the contract is binding.

A contract template has zero parties, or placeholder parties with temporary information, while a contract offer has at least one signing party.

Each party, as described in Figure 7, can either be a person (element `cel-core:Person`) or an organization (element `cel-core:Organization`). Both share the same structure (`cel-core:PartyBasicGroup`), but in the latter case, a signatory person can be optionally given (element `cel-core:Signatory`).

The `cel-core:PartyBasicGroup`, common to both Person and Organization cases, and to the signatory element as well, is made of the following:

- `cel-core:Name` element, the name of the party;
- a number of `dc:identifier` elements, to be used for giving references to registries in which the party is registered, such as the VAT identification number;

- the `dc:description` element, to provide a free text description of the party;
- the `cel-core:Details` element, to provide further detailed information, such as address and other contact information.

The party element might be further enriched with the address (element `cel-core:Address`) that can be used to provide party address as free text.

Without the `dsig:Signature` element, the contract is not binding.

The attribute `id`, of type `xsd:ID`, is used for uniquely identify the party element within the contract document.

The `cel-core:PartyType` complex type has been created with the structure depicted in [Figure 7](#).

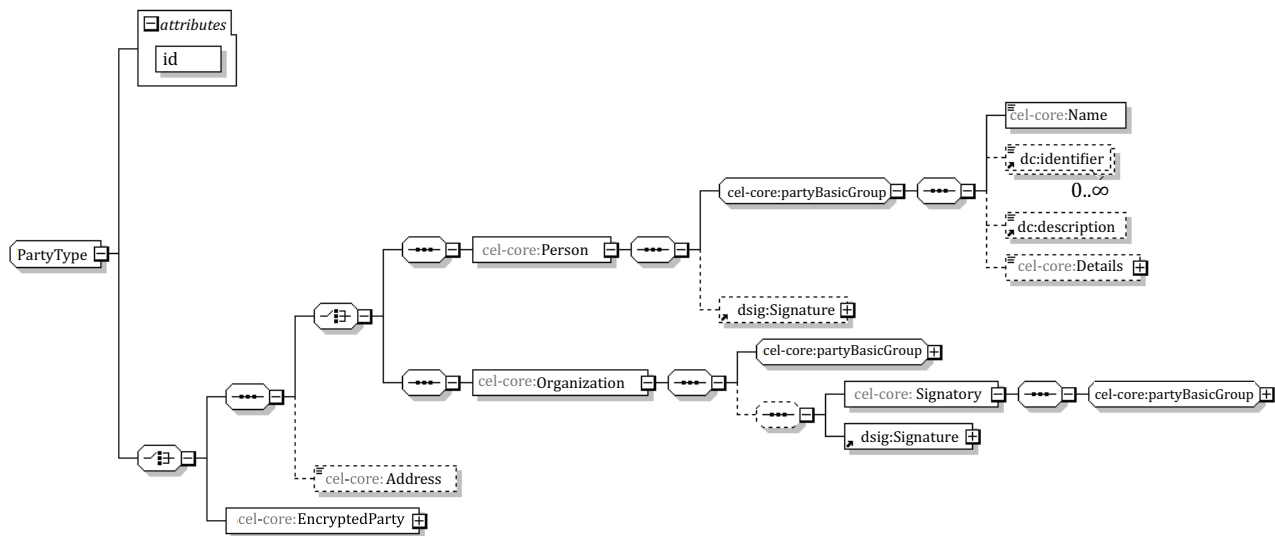


Figure 7 — Contract party element

The relevant elements of the XML Schema used for defining the `cel-core:PartyType` are given in the following box.

```
<complexType name="PartyType">
  <choice>
    <sequence>
      <choice>
        <sequence>
          <element name="Person">
            <complexType>
              <sequence>
                <group ref="cel-core:partyBasicGroup"/>
                <element ref="dsig:Signature" minOccurs="0"/>
              </sequence>
            </complexType>
          </element>
        </sequence>
        <sequence>
          <element name="Organization">
            <complexType>
              <sequence>
                <group ref="cel-core:partyBasicGroup"/>
                <sequence minOccurs="0">
                  <element name="Signatory" minOccurs="1">
                    <complexType>
                      <sequence>
                        <group ref="cel-core:partyBasicGroup"/>
                      </sequence>
                    </complexType>
                  </element>
                  <element ref="dsig:Signature" minOccurs="1"/>
                </sequence>
              </sequence>
            </complexType>
          </element>
        </sequence>
      </choice>
      <element name="Address" type="string" minOccurs="0"/>
    </sequence>
    <element name="EncryptedParty" type="cel-core:EncryptedPartyType"/>
  </choice>
  <attribute name="id" type="ID" use="required"/>
</complexType>
```

7.2.5.2 Example

The following contract exemplifies two parties, without signatures. The first party is an organization, represented by a signatory person who is further described by a virtual card. Note the use of RDF, used

to give enriched information on the party. The second party is a person, whose details are given by means of the MPEG7:Person element.

```
<cel-core:Party id="RAI">
  <cel-core:Organization>
    <cel-core:Name>RAI Radiotelevisione Italiana</cel-core:Name>
    <dc:identifier>urn:VATIN:IT06382641006</dc:identifier>
    <dc:description>The Italian public broadcasting company</dc:description>
    <cel-core:Signatory>
      <cel-core:Name>Mario Rossi</cel-core:Name>
      <cel-core:Details xmlns:vCard="http://www.w3.org/2001/vcard-rdf/3.0#"
xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#">
        <vCard:EMAIL rdf:parseType="Resource">
          <rdf:value>thee@nowhere.com </rdf:value>
          <rdf:type rdf:resource="http://www.w3.org/2001/vcard-rdf/3.0#inter-
net"/>
        </vCard:EMAIL>
      </cel-core:Details>
    </cel-core:Signatory>
  </cel-core:Organization>
  <cel-core:Address>Viale Mazzini 14, 00195 Roma, ITALY</cel-core:address>
</cel-core:Party>
<cel-core:Party id="JDOE">
  <cel-core:Person>
    <cel-core:Name>John Doe</cel-core:Name>
    <dc:identifier>urn:VATIN:123456</dc:identifier>
    <dc:description>Second party of the contract</dc:description>
    <cel-core:Details xmlns:mpeg7="urn:mpeg:mpeg7:schema:2001">
      <mpeg7:Person>
        <mpeg7:Name>
          <mpeg7:GivenName>John</mpeg7:GivenName>
          <mpeg7:FamilyName>Doe</mpeg7:FamilyName>
          <mpeg7:Title>Dr</mpeg7:Title>
        </mpeg7:Name>
        <mpeg7:Affiliation>
          <mpeg7:Organization>John Doe Communications</mpeg7:Organization>
        </mpeg7:Affiliation>
        <mpeg7:Citizenship>UK</mpeg7:Citizenship>
        <mpeg7:ElectronicAddress>
          <mpeg7:Telephone>+12 345 6789100</mpeg7:Telephone>
          <mpeg7:Email>johndoe@secondparty.com</mpeg7:Email>
        </mpeg7:ElectronicAddress>
      </mpeg7:Person>
    </cel-core:Details>
  </cel-core:Person>
</cel-core:Party>
```

7.2.6 Body element

7.2.6.1 General

The `cel-core:Body` element contains the contract itself, i.e. the agreed clauses. It contains the following elements, as depicted in [Figure 8](#):

- `cel-core:TextualPart`, optionally including a number of structured narrative clauses.
- `cel-core:OperativePart`, to be used, for example, in a MPEG-21 based system. It contains the deontic expressions of the operative part by means of XML representation as defined in [7.3](#).

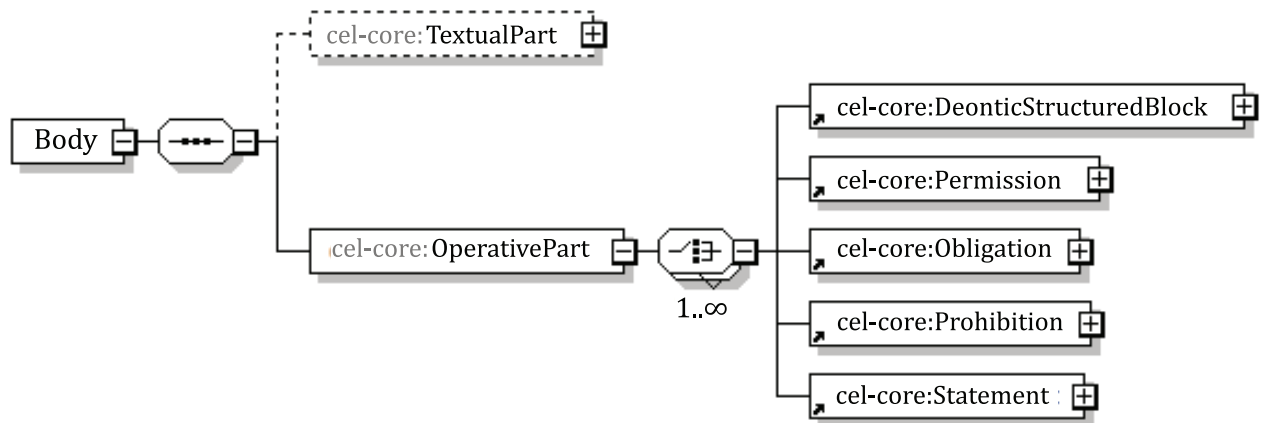


Figure 8 — Structure and placement of Body element

7.2.6.2 Text clauses

7.2.6.2.1 Overview

Text clauses are represented with elements of type `cel-core:TextClauseType`, which allows a structure of other nested `cel-core:TextClause` elements ending with an element `cel-core:TextParagraph`, containing the actual text. Text paragraphs can indistinctly appear in clear text or encrypted under the `cel-core:TextParagraph` or `cel-core:EncryptedTextParagraph` elements, respectively. The structure defined for the `cel-core:TextClause` element is depicted in [Figure 9](#).

If the `cel-core:TextualPart` element contains any `cel-core:EncryptedTextParagraph` element, the `cel-core:Contract` element can contain an encrypted version of the whole narrative contract under the `cel-core:EncryptedTextVersion` element.

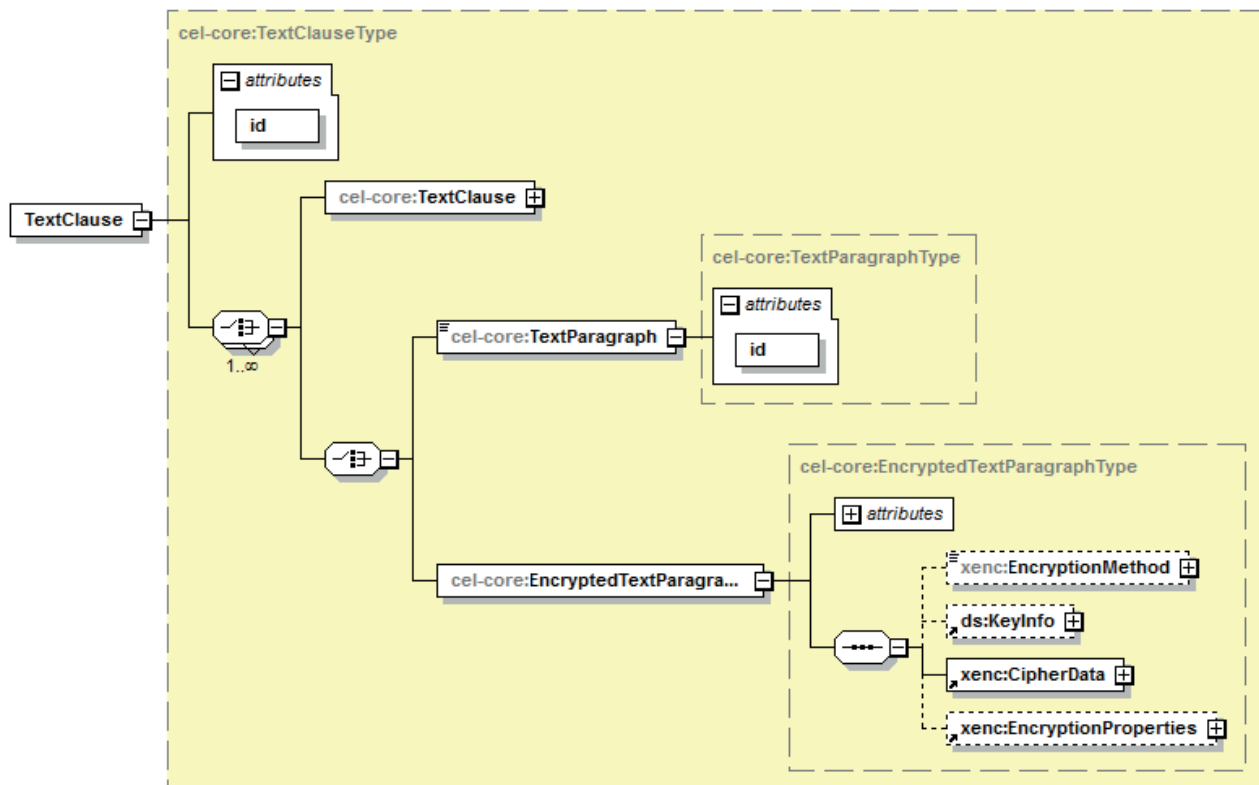


Figure 9 — TextClause element

The following box specifies the `cel-core:TextClauseType`, `cel-core:TextParagraphType` and the `cel-core:EncryptedTextParagraphType` types.

```

<complexType name="TextClauseType">
  <choice maxOccurs="unbounded">
    <element name="TextClause" type="cel-core:TextClauseType"/>
    <choice>
      <element name="TextParagraph" type="cel-core:TextParagraphType"/>
      <element name="EncryptedTextParagraph" type="cel-core:EncryptedTextParagraphType"/>
    </choice>
  </choice>
  <attribute name="id" type="ID" use="required"/>
</complexType>
<complexType name="TextParagraphType">
  <simpleContent>
    <extension base="string">
      <attribute name="id" type="ID" use="required"/>
    </extension>
  </simpleContent>
</complexType>
<complexType name="EncryptedTextParagraphType">
  <complexContent>
    <extension base="xenc:EncryptedDataType"/>
  </complexContent>
</complexType>

```

Both the `cel-core:TextClause` and the `cel-core:TextParagraph` elements have an attribute `id` of type `xsd:ID` which uniquely identifies them within the contract and allows to have a reference to them from the operative part section.

7.2.6.2.2 Text references

7.2.6.2.2.1 General

The reference to elements of the `cel-core:TextualPart` is achieved by means of the attribute `idrefs` of type `IDREFS` of the elements of type `cel-core:DeonticStructuredClauseType` or the element `cel-core:DeonticStructuredBlock`. The value of this attribute is the space-separated list of the IDs of the referenced elements. The XML validation will ensure that all the referenced elements are present in the document.

7.2.6.2.2.2 Example

The next example illustrates the usage of the CEL referencing mechanism, where the `cel-core:TextClause` and `cel-core:TextParagraph` referenced elements are those of the example in [7.2.6.2](#). The details of the elements `cel-core:Permission`, marked with the character '+', are not shown.

```
<cel-core:OperativePart>
+ <cel-core:Permission idrefs="TC003.3">
+ <cel-core:Permission idrefs="TP002R3 TP002L TP002F TP002ii">
+ <cel-core:Permission idrefs="TP002R2 TP002L TP002i">
+ <cel-core:Permission idrefs="TP002R1 TP002L TP002i">
</cel-core:OperativePart>
```

7.2.6.2.3 Encryption

Encrypted deontic structured blocks are represented by the `cel-core:EncryptedBlock` element of type `cel-core:EncryptedBlockType` which makes use of the XML Encryption.

```
<complexType name="EncryptedBlockType">
  <complexContent>
    <extension base="xenc:EncryptedDataType"/>
  </complexContent>
</complexType>
```

Encrypted operative clauses are represented by the `cel-core:EncryptedClause` element of type `cel-core:EncryptedClauseType` which makes use of the XML Encryption.

```
<complexType name="EncryptedClauseType">
  <complexContent>
    <extension base="xenc:EncryptedDataType"/>
  </complexContent>
</complexType>
```

7.2.6.2.4 Example

The next example represents in a structured way the contract text by using the `cel-core:TextClause` and the `cel-core:TextParagraph` elements, while the example in 7.2.6.2.1.2 shows an example of how these elements are referenced from the operative part.

```
<cel-core:TextClause id="TC002">
  <cel-core:TextParagraph id="TP002h">2.1 (Acquisition of 100% exploitation rights both
by free of charge and upon any kind of payment communication to the public and/or by mak-
ing the Program available to the public, both free of charge and upon any kind of pay-
ments, at the time and place chosen by the viewer, in Italy, Vatican City, Republic of
San Marino and
Principality of Monaco) Under this Agreement, Rai acquires
...</cel-core:TextParagraph>
  <cel-core:TextParagraph id="TP002i">i) by communication to the public through remote
diffusion/broadcast, whether
...</cel-core:TextParagraph>
<cel-core:TextParagraph id="TP002ii">ii) by making the Program available to the public
...</cel-core:TextParagraph>
  <cel-core:TextParagraph id="TP002F">The herein licensed rights shall also include the
exclusive right to place the Programs at the publics disposal with or without any payments
...</cel-core:TextParagraph>
  <cel-core:TextParagraph id="TP002L">The grant is made for n. 5 (five) years starting on
[...] , until [...], (the so-called License Period);
</cel-core:TextParagraph>
  <cel-core:TextClause id="TC002R">
    <cel-core:TextParagraph id="TP002Rh">The following number of runs are hereby grant-
ed during the License Period:</cel-core:TextParagraph>
    <cel-core:TextParagraph id="TP002R1">- with reference to the communication to the
public by unencrypted and free of charge television
...</cel-core:TextParagraph>
    <cel-core:TextParagraph id="TP002R2">- with reference to the communication to the
public by encrypted and upon payment television diffusion/broadcast
...</cel-core:TextParagraph>
    <cel-core:TextParagraph id="TP002R3">- with reference to the right to make the Pro-
gram available to the public at the time and place chosen by the final viewer (point to
point communication)
...</cel-core:TextParagraph>
  </cel-core:TextClause>
</cel-core:TextClause>
<cel-core:TextClause id="TC003">
  <cel-core:TextClause id="TC003.3">
    <cel-core:TextParagraph id="TP003.3">3.3 (Right to use separate excerpts)
By the present Agreement, Rai is also granted the right to use and exploit in the Terri-
tory and during the License Period and during the License Period, even by the Internet or
similar networks (e.g. UMTS, etc.)
...</cel-core:TextParagraph>
  </cel-core:TextClause>
</cel-core:TextClause>
```

7.2.6.3 Operative part

The operative part is represented with a single container element, `cel-core:OperativePart`, which contains the deontic expressions of the operative part by means of the elements `cel-core:DeonticStructuredBlock` and/or any element of type `cel-core:DeonticStructuredClauseType`, i.e. `cel-core:Permission`, `cel-core:Prohibition`, `cel-core:Obligation` or `cel-core:Statement`. Both elements share the same mechanism for referencing elements in the `cel-core:TextualPart` and for allowing the inclusion of encrypted clauses. The structure of the `cel-core:OperativePart` element is shown in [Figure 10](#). The element `cel-core:DeonticStructuredBlock` enables the grouping of contract clauses which are related in some way.

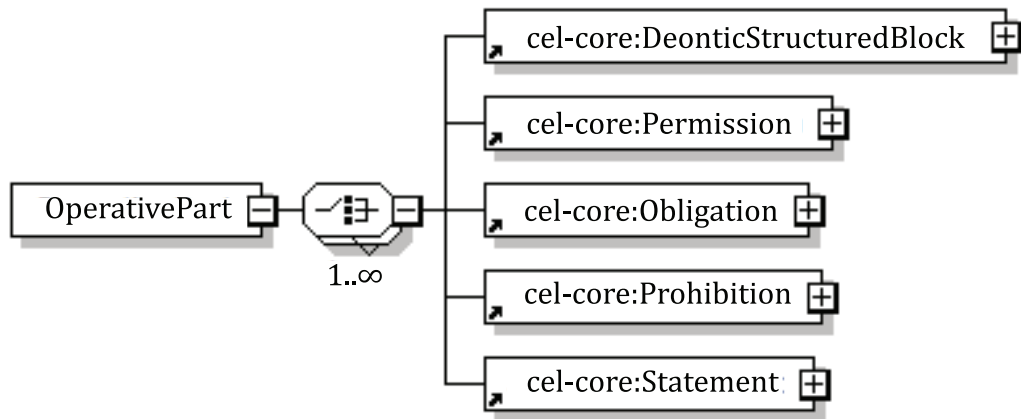


Figure 10 — OperativePart element

```

<element name="OperativePart">
  <complexType>
    <choice maxOccurs="unbounded">
      <element ref="cel-core:DeonticStructuredBlock"/>
      <element ref="cel-core:Permission"/>
      <element ref="cel-core:Obligation"/>
      <element ref="cel-core:Prohibition"/>
      <element ref="cel-core:Statement"/>
    </choice>
  </complexType>
</element>

```

```

<complexType name="DeonticStructuredClauseType">
  <choice>
    <sequence>
      <element ref="cel-core:Metadata" minOccurs="0"/>
      <element name="Context" type="anyType" minOccurs="0"/>
      <element name="PreCondition"
        type="cel-core:PreConditionType" minOccurs="0"
        maxOccurs="unbounded"/>
      <element ref="cel-core:Subject"/>
      <element name="Act" type="cel-core:ActType"/>
      <element name="Object" type="cel-core:ObjectType"
        minOccurs="0" maxOccurs="unbounded"/>
      <element name="ResultantObject" type="cel-core:ItemType"
        minOccurs="0" maxOccurs="unbounded"/>
      <element name="Constraint" type="cel-core:ConstraintType"
        minOccurs="0"/>
      <element name="PostCondition" type="cel-core:PostConditionType"
        minOccurs="0"/>
      <element name="Issuer" type="cel-core:IssuerType" minOccurs="0"/>
    </sequence>
    <element name="EncryptedClause" type="cel-core:EncryptedClauseType"/>
  </choice>
  <attribute name="number" type="string"/>
  <attribute name="id" type="ID" use="required"/>
  <attribute name="idrefs" type="IDREFS"/>
</complexType>

```

7.3 CEL Deontic Structure

7.3.1 General

MPEG-21 contracts contain agreements between parties, which are represented by deontic concepts of permission, prohibition, obligation and statement. To represent these agreements in XML language, blocks and clauses are used to represent operative parts of contracts in a machine-readable format. They are grouped in the `cel-core:OperativePart` element, described in [7.2.6.3](#), child element of the `cel-core:Body`. In the following subclauses, the elements comprising the CEL deontic structure are described in detail.

7.3.2 Deontic Structured Block

The `cel-core:DeonticStructuredBlock` is defined to group related deontic clauses as a nested structure. It is made up of `cel-core:DeonticStructuredBlock`, `cel-core:Permission`, `cel-core:Prohibition`, `cel-core:Obligation`, `cel-core:Statement` or `cel-core:EncryptedBlock` elements. [Figure 11](#) shows its structure.

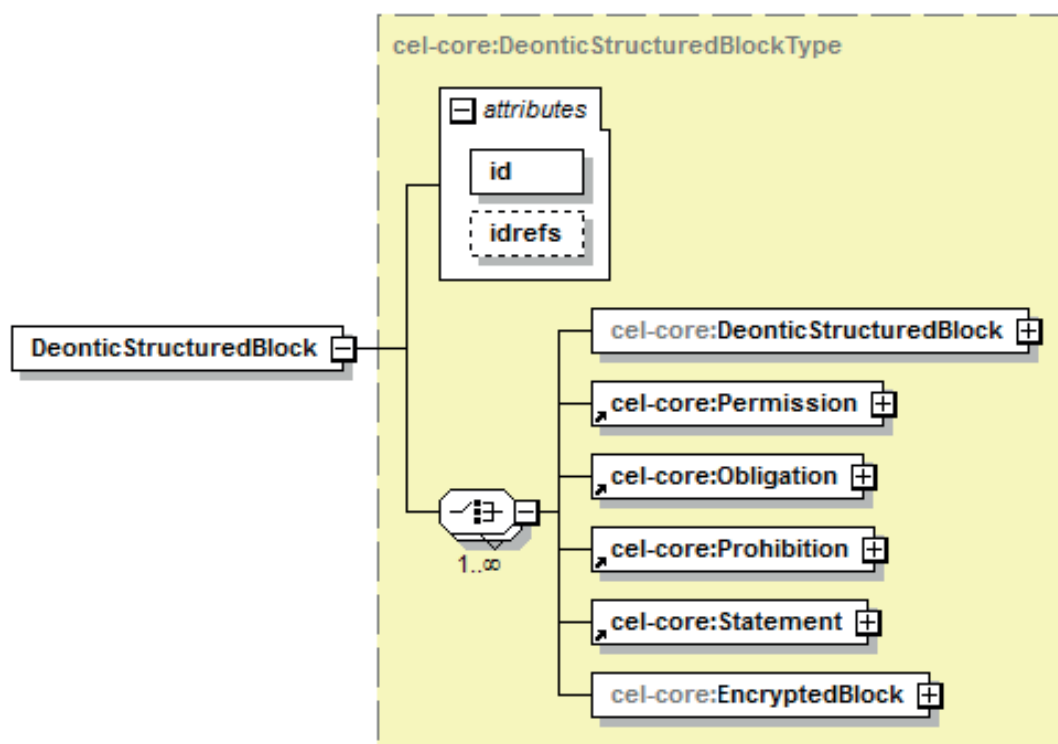


Figure 11 — DeonticStructuredBlock element

The `cel-core:DeonticStructuredBlock` element has the attributes:

- `id` — to uniquely identify the Block. This attribute is mandatory. It has type `xsd:ID`.
- `idrefs` — to optionally reference to textual parts of the contract as defined in [7.2.6.2.1](#).

The `cel-core:EncryptedBlock` element, if present, contains the encrypted version of a `cel-core:DeonticStructuredBlock` element. It makes use of the XML Encryption (see [7.2.6.2.3](#)).

7.3.3 Statement

`cel-core:Statement` element defines the declaration of the matters of fact for the contract being defined. Although it is structured as a deontic clause, see [7.3.4](#), it has no deontic consequences for the actions by the parties.

7.3.4 Deontic Structured Clause Type

7.3.4.1 General

All the deontic clauses within the operative part of a contract, namely `cel-core:Permission`, `cel-core:Obligation`, `cel-core:Prohibition` or `cel-core:Statement`, are represented by the `cel-core:DeonticStructuredClauseType`, which consists of the following elements as depicted in [Figure 12](#):

- `cel-core:Metadata` — XML deontic clause metadata;
- `cel-core:Context` — context for the XML deontic clause;
- `cel-core:PreCondition` — pre-conditions of the XML deontic clause;
- `cel-core:Subject` — entity to which the XML deontic clause applies;
- `cel-core:Act` — right to be applied;
- `cel-core:Object` — resources against which the right will apply;
- `cel-core:ResultantObject` — resource resultant of applying the `cel-core:Act` over the `cel-core:Object`;
- `cel-core:Constraint` — conditions which shall be fulfilled;
- `cel-core:PostCondition` — post-conditions of the deontic structured clause;
- `cel-core:Issuer` — party that issues the permission, prohibition, obligation or statement specified in the deontic clause.